

Cultural evolution : conceptual challenges.

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BOOK REVIEWS

Tim Lewens, *Cultural Evolution: Conceptual Challenges*. Oxford: Oxford University Press (2015), 192 pp., \$45.00 (cloth).

Cultural evolution is an interdisciplinary, rapidly developing, scientific framework aiming to provide a naturalistic and quantitative explanation of culture. Tim Lewens's *Cultural Evolution* is, to my knowledge, the first book-length philosophical review of the theoretical background of the field. The analogy between biological and cultural evolution is as old as the idea of biological evolution itself, and it has been—and is—prone to several sorts of misunderstandings and loose implementations. For this reason, the first two chapters of Lewens's book are a timely, and efficacious, attempt to clarify the constraints that an approach to culture needs to satisfy in order to be genuinely “evolutionary.”

Lewens places the currently prominent approaches to cultural evolution, such as those proposed by Boyd and Richerson and colleagues (R. Boyd and P. J. Richerson, *Culture and the Evolutionary Process* [Chicago: University of Chicago Press, 1985]) or by Dan Sperber and colleagues (D. Sperber, *Explaining Culture: A Naturalistic Approach* [Oxford: Blackwell, 1996]), in a middle ground between historical approaches and selectionist approaches. An advocate of a historical approach simply defends the idea that culture changes in time, possibly in a gradual manner: this is hardly questionable but also not very informative. Selectionist approaches, by contrast, imply that cultural traits are involved, to a certain degree, in the proverbial Darwinian struggle. Of course, the “certain degree” makes the difference: Lewens quickly rejects, I believe with good arguments, frameworks such as memetics, which are committed to the idea that cultural traits replicate (as genes do, roughly), and considers selectionist approaches as just holding that cultural traits exhibit the key properties of variation, competition, and inheritance. However, most cultural evolutionists do not, according to Lewens, conform to this requirement, and they are thus described as kinetic theorists. Kinetic theories only require that “large-scale patterns extending across time could be explained in terms of the aggregated effects of many small-scale events that occur in the lives of individual organisms” (17). The reference is obviously to the kinetic theory of gases, and, as Lewens promptly notes, there is nothing particularly “Darwinian” going on here. Whether such kinetic theories can be defined “evolutionary” is an important point, to which I return at the end of this review.

In the following chapters, Lewens addresses a series of critical aspects of cultural evolutionary theories, such as the plausibility of the informational

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definition of culture endorsed by the majority of cultural evolutionists, the importance of a notion of “human nature” for cultural evolution, the risks associated with the extensive use of models that characterizes a large part of the cultural evolutionary enterprise, and, finally, the limitations of considering population-level phenomena, such as culture, as the aggregate product of simple individual interactions. Lewens lucidly points out several difficulties and inconsistencies present in the work of cultural evolutionists, but he maintains a positive view of the field. Yes, cultural evolutionists might be inconsistent in their definitions of culture or in their endorsements of various views of human nature, but the overall validity of the kinetic approach to culture does not depend on those views. Yes, empirical justifications of models used by cultural evolutionists are at times circular, and their models can hardly take into account idiosyncratic individual characteristics, but this does not compromise the overall validity of the modeling approach of cultural evolutionists, as long as these problems are recognized and considered case by case, model by model.

Particularly important are Lewens’s chapters on the modeling strategies adopted by cultural evolutionists, because the use of analytical and simulation models has been considered, from the beginning, one peculiarity of the cultural evolution framework. In fact, one could justify an evolutionary approach to culture solely on the basis of pragmatic considerations related to the use of models. Models have been useful for the development of other disciplines. We do not know how to model culture, but we have reasonably good models for evolutionary dynamics in biology: we can thus use those models for culture, as long as there are some similarities between the two processes. Cultural evolutionists’ modeling methodology is, of course, even more noteworthy given the opposite attitude that characterizes the majority of contemporary anthropological research.

Lewens has a balanced, but optimistic, opinion of cultural evolution models. The book goes in depth in respect to one of the central concepts that cultural evolutionists use: conformist bias. In cultural evolution, “conformist bias” indicates that the probability of copying a common cultural trait is higher than the actual frequency of this trait. In other words, if seven out of 10 persons are drinking a glass of red wine in a restaurant, my probability of ordering red wine, if I am “conformist,” should be higher than 70% (if my probability is 70%, my copying is “unbiased,” in cultural evolution lingo). This is critical because cultural evolution models have investigated several consequences that derive from people being conformist—in the technical sense explained above—including how cultural traits would diffuse (the example used by Lewens) but also how stable cultural differences are maintained between human groups, which is necessary in prominent cultural evolution accounts to make typically human prosociality possible (R. Boyd and P. J. Richerson, “Culture and the Evolution of Human Cooperation,”

Philosophical Transactions of the Royal Society B 364 [2009]: 3281–88). Model results depend on the empirical plausibility of such a conformist bias, but this is generally left unchecked in the models themselves. Lewens notes that, in this particular case, the empirical evidence is far from being uncontroversial. However, this does not invalidate the usage of models; on the contrary, models are useful to generating research questions, such as those regarding the empirical existence of a conformist bias, its importance in respect to other ways to choose which cultural traits to acquire (e.g., on the basis of the actual content of cultural traits or the perceived prestige of the traits' bearers), or the possibility of alternative mechanisms able to generate stable cultural group differences.

Is everything going well for cultural evolution then? As I mentioned above, one can wonder whether Lewens's overall positive assessment chiefly depends on a watered-down definition of the cultural evolutionary research program. The characterization of cultural evolutionists as kinetic theorists leaves unanswered the question of why, first and foremost, they should be called "Darwinians" or even "evolutionists." Lewens claims that cultural evolutionists adopt a general *adaptationist stance*: for the Boyd and Richerson school this entails that the cognitive mechanisms that support social learning (mainly domain-general heuristics such as the conformist bias mentioned above) are adaptations, and for the Sperber school this rests on a modular view of mind, influenced by evolutionary psychology. This picture is largely correct, but is this enough to characterize an approach to culture as evolutionary if the dynamics of change of cultural traits themselves are not evolutionary?

Among cultural evolutionists considered by Lewens, Sperber and colleagues are explicitly nonselectionists (N. Claidière, T. C. Scott-Phillips, and D. Sperber, "How Darwinian Is Cultural Evolution?" *Philosophical Transactions of the Royal Society B* 369 [2014]: 20130368), but others, such as Boyd and Richerson (see, e.g., P. J. Richerson and R. Boyd, *Not by Genes Alone: How Culture Transformed Human Evolution* [Chicago: University of Chicago Press, 2006]) and, as Lewens notes, Alex Mesoudi (*Cultural Evolution: How Darwinian Theory Can Explain Human Culture and Synthesize the Social Sciences* [Chicago: University of Chicago Press, 2011]) seem well disposed to acknowledge that cultural traits exhibit variation, competition, and inheritance. It is certainly true that selection is not a fundamental ingredient in many cultural evolution models (see, e.g., J. Henrich and R. Boyd, "On Modeling Cognition and Culture: Why Cultural Evolution Does Not Require Replication of Representations," *Journal of Cognition and Culture* 2 [2002]: 87–112), and Lewens has rather good reasons to be dubious about the added epistemological value of a selectionist perspective. However, the utility of selectionism in cultural evolution can be defended (see, e.g., C. Heyes, Review of *Cultural Evolution*, by Tim Lewens,

British Journal for the Philosophy of Science [2015], doi:10.1093/bjps/axv054), but mainly, even acknowledging the importance that nonselectionist dynamics play in culture, it seems reasonable that to study cultural evolution, one should commit at least to the idea that in some domains, or at some level of analysis, selection plays an important role in explaining the spread of cultural traits (A. Acerbi and A. Mesoudi, “If We Are All Cultural Darwinians What’s the Fuss About? Clarifying Recent Disagreements in the Field of Cultural Evolution,” *Biology and Philosophy* 30 [2015]: 481–503). If one does not commit to this idea, it seems legitimate to wonder what the reasons are to use the “evolution” label.

The picture of cultural evolution that Lewens outlines may have the advantage of protecting the approach from criticisms of reductionism and making it more palatable to other social and human scientists but may also partly limit the radicalness of its contribution. Its wide-ranging coverage may have the advantage of including in the cultural evolution paradigm a wealth of excellent naturalistic research but may also have the consequence of losing the detail on interesting differences between perspectives, such as the above-mentioned Sperber versus Boyd and Richerson schools, which are not particularly considered in Lewens’s book. Whether they will recognize themselves in this picture or not, cultural evolutionists should be flattered that a philosopher took great care to examine their work: the field can only benefit from thought-provoking books such as Lewens’s.

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Robert J. Richards and Lorraine Daston, eds., *Kuhn’s Structure of Scientific Revolutions at Fifty: Reflections on a Science Classic*. Chicago: University of Chicago Press (2016), 202 pp., \$25.00 (paper); \$75.00 (cloth).

This volume of essays is one of several put together as part of the celebrations of the fiftieth anniversary of the publication of Kuhn’s *Structure of Scientific Revolutions* (see also V. Kindi and T. Arabatzis, eds., *Kuhn’s Structure of Scientific Revolutions Revisited* [London: Routledge, 2012]; W. J. Devlin and A. Bokulich, eds., *Kuhn’s Structure of Scientific Revolutions: 50 Years On*, Boston Studies in the Philosophy and History of Science 311 [Dordrecht: Springer, 2015]; Alexander Blum, Kostas Gavroglou, Christian Joas, and Jürgen Renn, eds., *Shifting Paradigms: Thomas S. Kuhn and the History of Science* [Berlin: Max-Planck-Gesellschaft zur Förderung der Wissenschaften, 2016]). The volume under review is based on a conference held in 2012 sponsored by the Fishbein Center for the History of Science and Medicine at the University of Chicago and the Max Planck Institute for the History of Science